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Thanks,

Bill

From: Davis, Chris (GOV)

Sent: Monday, November 12, 2018 9:35 AM

To: Drumheller, Bill (ECY) < <u>HYPERLINK "mailto:bdru461@ECY.WA.GOV"</u> bdru461@ECY.WA.GOV >

Cc: McCloy, Lauren (GOV) < HYPERLINK "mailto:lauren.mccloy@gov.wa.gov" lauren.mccloy@gov.wa.gov >; Schuler, Reed (GOV) < HYPERLINK "mailto:reed.schuler@gov.wa.gov" reed.schuler@gov.wa.gov >; Knutson, Charles (GOV) < HYPERLINK "mailto:Charles.Knutson@gov.wa.gov" Charles.Knutson@gov.wa.gov >

Subject: RE: Updated Carbon Policy Figures and Spreadsheet

Thanks Bill

Super clear – and the added value of you being happy was an unexpected bonus. Outstanding.....

So far just a couple questions....

If I understand the Trump CAFÉ toggle: "True" means you assume the admin prevails, CAFÉ is delayed at the current levels and thus our BAU emissions go up slightly as we're not benefitting from the added fuel efficiency related reductions. After reading the ZEV Mandate thread, I conclude we're settling on 1.5 MMT for the policy **if we assume trump's café policy prevails** (ie, remains "true" in your spreadsheet).

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I'm asking because I think we want to present the False scenario to the Gov. There is some distance to go before that becomes law and I'm reluctant to present the more uncertain scenario when the rest of the BAU is at least driven by existing policy.

Bill: BTW – can you also update the separate buildings graphic with the new buildings numbers? –

Thanks

CHRIS DAVIS

Senior Advisor – Climate and Energy Affairs | Office of Governor Jay Inslee

Mobile: 360-972-5693

HYPERLINK "http://www.governor.wa.gov/" www.governor.wa.gov_| HYPERLINK "mailto:chris.davis@gov.wa.gov" chris.davis@gov.wa.gov

HYPERLINK "https://www.facebook.com/WaStateGov" HYPERLINK

"https://twitter.com/GovInslee" HYPERLINK

"https://www.flickr.com/photos/govinslee/sets" HYPERLINK

"http://instagram.com/govinslee"

From: Drumheller, Bill (ECY)

Sent: Sunday, November 11, 2018 2:07 AM

To: Davis, Chris (GOV) < <u>HYPERLINK "mailto:chris.davis@gov.wa.gov"</u> chris.davis@gov.wa.gov >

Cc: McCloy, Lauren (GOV) < HYPERLINK "mailto:lauren.mccloy@gov.wa.gov" lauren.mccloy@gov.wa.gov >; Schuler, Reed (GOV) < HYPERLINK "mailto:reed.schuler@gov.wa.gov" reed.schuler@gov.wa.gov >; Knutson, Charles (GOV) < HYPERLINK "mailto:Charles.Knutson@gov.wa.gov" Charles.Knutson@gov.wa.gov >

Subject: Updated Carbon Policy Figures and Spreadsheet

Chris,

Attached is an updated spreadsheet and associated figures (also pasted below) representing the latest numbers in the carbon tax v carbon policies figure for the Governor. I'm still awaiting a number from Lauren on the Solar Incentive, but a placeholder (from the 2015 quant exercise with Keith) is used here. I've updated the other policies as per the email traffic on this subject for the past couple of days. Key changes include:

- 1) There is now consistency across all policies in the treatment of the EIA, with those reductions now embedded in the BAU forecast (black bar). This means that the prior analysis of the Gov's carbon tax and these new analyses are alll calibrated to the same (more or less) BAU forecast. This makes me happy.
- 2) The 100% Clean Energy policy is now using the estimate derived from the modified Council 3E forecast, as opposed to the E3 forecast from PGP. Not that anyone would confuse 3E with E3. And the 100% thing is purely incremental to the EIA reductions, even though they overlap.

- 3) The buildings initiative is using the much smaller 2031 code number, and a tiny bit bigger number for the NG standard for the extra 5% of commercial now included. I also added the note that it is incremental to the EIA like the 100% piece (it always has been, but I hadn't made that clear before).
- 4) I added the Solar Incentive per Lauren's request. I used the estimate from the 2015 quant exercise that I think came from WSU (Tony might know) as a placeholder. Lauren, on the front page of the spreadsheet there is an easy input under the TOGGLE in yellow where you can change that value as you see fit.
- 5) The Transportation Initiative piece now includes Reed's estimates for both the ZEV mandate and the EV Incentives piece. The high speed rail and ferry pieces remain pretty much same, although I expanded those estimates to more significant digits.
- 6) As per my prior email I have created a toggle where you can either include or exclude the Trump CAFE standard rollbacks in the BAU. Reed, or others, by simply changing the value in that toggle from True to False the estimate I derived by scaling the Rhodium Group analysis to Washington will be incorporated or not. It is currently set to include that, so the BAU rises about 1.8 MMT (and then falls by that amount with the ZEV mandate + EV incentives).
- 7) And finally, since I never got a clear idea of how yell want these data presented, I have created to different versions of these figures. The first is the original styel as requested by you, Chris, with the carbon tax denoted with vertical bars and the policies as descending bar bits. The second is Reed's preferred stye, although I took the liberty of using two different patterns for the investment bar to delineate between the delta between the price signal level and the start of the min/max estimated range for the investments. One new addition to both is purely my suggestion, which is a small dottel line at the top to bridge the gap between the BAU bar and the start of the descending carbon policies. The gap between the two was driving me nuts, so if you hate it let me know and I can delete it (or you can, it's easy enough to do.)

OK, I think that's it for now. I'm home Sunday and Monday, and should be checking email on occasion. I'm in Issaquah for a class on Tuesday.

email on occasion. I'm in Issaquah for a class on Tuesday.

Thanks,

Bill

Chris Version Reed Version

Bill Drumheller

Climate & Energy Specialist, Air Quality Program

Washington Department of Ecology

(360) 407-7657 (desk)

(360) 628-4939 (cell)

HYPERLINK "mailto:bdru461@ecy.wa.gov" bdru461@ecy.wa.gov

McCloy, Lauren (GOV)

FW: Updated Carbon Policy Figures and Spreadsheet

To: Carlson, Dean(OFM)
Cc: Davis, Chris(GOV)

Dean:

See numbers below regarding the funding requirement for the solar incentive. Just a reminder, I think we discussed that this would require a statutory change to change the program funding cap. I can point you to the relevant section, and would be in interested in your recommendation for how to do that, assuming we are moving forward with this.

Lauren

From: Jake Fey

Sent: Wednesday, November 14, 2018 12:53 PM

To: McCloy, Lauren (GOV) **Cc:** Phil Lou; Sheila Riggs

Subject: FW: Updated Carbon Policy Figures and Spreadsheet

Lauren,

At your request I am providing the backup for our calculations of the funding necessary to fully fund the 115MW capacity goal for the Renewable Energy Incentive Program that was passed in July 2017. Below is the table that shows the present status of the program with a rough estimate of the funding. Please note that until we receive precertification requests due this Friday we are winging it. Please treat the funding necessary estimate as a high figure because we have not calculated the Avista shared commercial project because they have not sent us a request for certification yet.

Project Type MW \$ Committed

Certified Systems 44.0 61.7M

Pre-Certified Community Solar 1.5 2.2M

Shared Commercial 28.0 9.3M

Expected Community Solar 2.0 3.0M

Total 75.5 76.2M

With the above assumptions we estimate that the remaining uncommitted \$33.8 M would yield an additional 22.5MW capacity. To reach the 115MW capacity goal and addition \$25.45 would be necessary over four biennia.

I want to be sure to emphasize that the goal of 115MW is a MW capacity goal. I have attached a document from Phil Lou which calculates the actual 2018 kWh for each utility. The average statewide capacity factor is about 11%. The data is from the legacy program where we have full year histories for FY2018.

From: McCloy, Lauren (GOV) [_HYPERLINK "mailto:lauren.mccloy@gov.wa.gov" mailto:lauren.mccloy@gov.wa.gov]

Sent: Monday, November 12, 2018 4:25 PM **To:** Jake Fey; Phil Lou; Sheila Riggs

Subject: RE: Updated Carbon Policy Figures and Spreadsheet

Please disregard. My math was flawed. We're not using this.

From: McCloy, Lauren (GOV)

Sent: Monday, November 12, 2018 11:13 AM

To: 'Jake Fey' < ; 'Sheila Riggs' < https://mailto:RiggsS@energy.wsu.edu">https://mailto:RiggsS@energy.wsu.edu > ; 'Sheila Riggs' < https://mailto:RiggsS@energy.wsu.edu > ; 'Sheila Riggs' < https://m

Subject: FW: Updated Carbon Policy Figures and Spreadsheet

From: McCloy, Lauren (GOV)

Sent: Monday, November 12, 2018 11:09 AM

To: Drumheller, Bill (ECY) < <u>HYPERLINK "mailto:bdru461@ECY.WA.GOV" bdru461@ECY.WA.GOV</u> >; Davis, Chris (GOV) < <u>HYPERLINK "mailto:chris.davis@gov.wa.gov" chris.davis@gov.wa.gov</u> >

Cc: Schuler, Reed (GOV) < HYPERLINK "mailto:reed.schuler@gov.wa.gov" reed.schuler@gov.wa.gov >; Knutson, Charles (GOV) < HYPERLINK "mailto:Charles.Knutson@gov.wa.gov" Charles.Knutson@gov.wa.gov >; Glenn Blackmon (COM) (HYPERLINK "mailto:glenn.blackmon@commerce.wa.gov" glenn.blackmon@commerce.wa.gov) < HYPERLINK "mailto:glenn.blackmon@commerce.wa.gov" glenn.blackmon@commerce.wa.gov >; Usibelli, Tony (COM) < HYPERLINK "mailto:Tony.Usibelli@commerce.wa.gov" Tony.Usibelli@commerce.wa.gov >

Subject: RE: Updated Carbon Policy Figures and Spreadsheet

I'm struggling with the solar #. I'm getting a # that is an order of magnitude higher than what is shown on Bill's spreadsheet. I'm projecting 16 MMT avoided for the 72 MW we've already certified. I assume these projects have not been factored into BAU...

The ask would be to fund an additional 43 MW of solar deployment, which would get us to the nominal 115 MW by June 30, 2021 (See RCW 82.16.155(5)(a))

For the purpose of this exercise, I think we should treat solar like EE – it avoids off-peak electricity emissions at the system average rate of 0.42 lb/kWh.

Does it make sense that an additional 43 MW of solar would get us 9.9 MMT of reductions? Seems very high. These would overlap with the 100% clean #, but would happen before 2022.

Based on this math, the solar program is extremely cost-effective for the state on an emissions basis... Unless I've made an error, which is entirely possible. See attached. What do ya'll think?

Lauren

From: Drumheller, Bill (ECY)

Sent: Monday, November 12, 2018 10:38 AM

To: Davis, Chris (GOV) < <u>HYPERLINK "mailto:chris.davis@gov.wa.gov" chris.davis@gov.wa.gov</u> >

Cc: McCloy, Lauren (GOV) < HYPERLINK "mailto:lauren.mccloy@gov.wa.gov" lauren.mccloy@gov.wa.gov >; Schuler, Reed

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<u>HYPERLINK "mailto:Charles.Knutson@gov.wa.gov" Charles.Knutson@gov.wa.gov</u> >

Subject: RE: Updated Carbon Policy Figures and Spreadsheet

Chris,

I have a mixed message on the ZEV mandate... My understanding was to include it in transportation, regardless of CAFE situation.

As it stands now the toggle just moves the BAU up and down, and everything else moves up and down with it.

I understand there may still be debate on this topic.

Therefore, I have added additional logic to the spreadsheet, so that you can adjust the ZEV mandate and CAFE situation separately. The newest version is attached.

It is now set to FALSE for CAFE and TRUE for including the ZEV mandate reductions. In other words, the BAU is as it was before (no CAFE adjustment) and the ZEV mandate reductions are currently included. Changing either of those toggles will change the spreadsheet accordingly.

Also, I've added a tab with the solar incentive number from the 2015 quant exercise somewhat explained. A final number can be inserted at the front end in the appropriate place once you all know what that should be.

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Bill

From: Davis, Chris (GOV)

Sent: Monday, November 12, 2018 9:35 AM

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HYPERLINK "https://www.flickr.com/photos/govinslee/sets"

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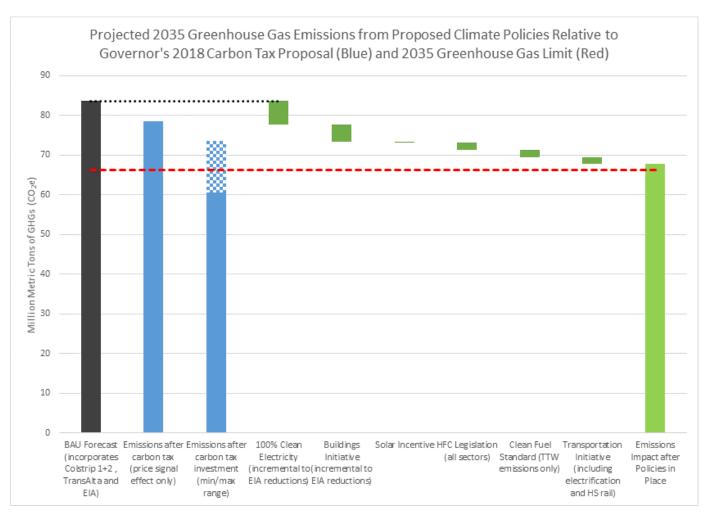
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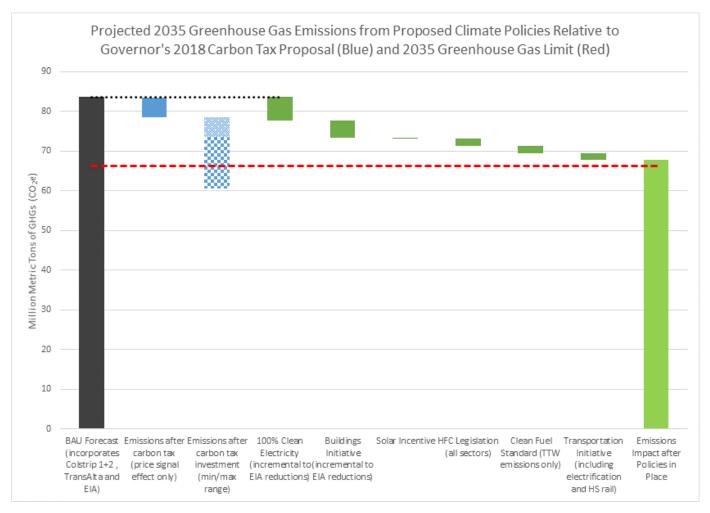
Thanks,

Bill

Chris Version



Reed Version



Bill Drumheller

Climate & Energy Specialist, Air Quality Program

Washington Department of Ecology

(360) 407-7657 (desk)

(360) 628-4939 (cell)

HYPERLINK "mailto:bdru461@ecy.wa.gov" bdru461@ecy.wa.gov

McCloy, Lauren (GOV)

FW: Energy/Carbon Budget Spreadsheet

To: Carlson, Dean(OFM), Crawford, Jim(OFM), Merriman, Scott(OFM)

Cc: Davis, Chris(GOV), Phillips, Keith(GOV)

The "renewable energy" section of this pie chart includes our biennial estimate for extending the solar incentive. This is a \$25.5 million hit to PUT over 4 biennia, or approx. \$3.1 million per FY.

Here is the info provided by WSU:

Project Type MW \$ Committed

Certified Systems 44.0 61.7M

Pre-Certified Community Solar 1.5 2.2M

Shared Commercial 28.0 9.3M

Expected Community Solar 2.0 3.0M

Total 75.5 76.2M

With the above assumptions we estimate that the remaining uncommitted \$33.8 M would yield an additional 22.5MW capacity. To reach the 115MW capacity goal and addition \$25.45 would be necessary over four biennia.

This would require a statutory change to amend the program spending cap. We had previously discussed potentially doing that in the back of the budget, but I understand that's a big ask, and just don't want to lose it in the mix.

Lauren

From: Davis, Chris (GOV)

Sent: Monday, November 12, 2018 9:58 PM

To: Phillips, Keith (GOV) **Cc:** McCloy, Lauren (GOV)

Subject: FW: Energy/Carbon Budget Spreadsheet

K

OFM re-arranged the budget categories so I'll be double checking these figures in the AM. Meantime let me know what you think is missing here....

A few words on potential outcomes – I'm thinking we take a moment to contemplate what we could say on the day we sign bills at end of session:

rd state to announce commitment and pathway to 100% clean electricity

oin the west coast in establishing a clean fuels standard, helping to build the world's largest market for low carbon transportation fuels

nsuring we're on a path to build all new construction net zero by 2030

ead the states in preventing federal backsliding by banning HFCs and setting energy efficiency standards for products and equipment

Slide 1 Messages:

ou have a multi-sector package, diverse stakeholders, broad interests in play lots of opportunity for progress

ach has strong opportunity make progress; unique stakeholder dynamics (ie, could discuss labor interest in buildings, utilities collaboration on 100%, H. leadership support of LCFS)

ackage can offer more than carbon tax (worst case forecast of spending related reductions) to slightly fewer (best case forecast of spending related reductions): Point - Taken together the package offers a significant opportunity for progress

Slide 2 Messages:

rient to the chart

123 M in non-transpo funding; more than 90% is capital;

eview tax incentives in Solar and Buildings; note multi-year outlook

lost of the progress is policy

pending relatively small amount of state resources for big gains (review the key cost elements)

iven carbon tax in the budget – we need full support from the legislative champions to move as much of the package as possible

Do we need more financial charts?

Pie of capital vs. operating?

Breakout of capital spending?

Picture of how we'll spend \$50, \$100 or \$150 M in carbon revenues?

CHRIS DAVIS

Senior Advisor – Climate and Energy Affairs | Office of Governor Jay Inslee

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"https://twitter.com/GovInslee" HYPERLINK "https://www.flickr.com/photos/govinslee/sets"

◙

HYPERLINK "http://instagram.com/govinslee"

From: Baldini, Myra (OFM)

Sent: Sunday, November 11, 2018 12:37 PM

To: Baldini, Myra (OFM) < HYPERLINK "mailto:Myra.Baldini@ofm.wa.gov" Myra.Baldini@ofm.wa.gov >; Davis, Chris (GOV) < HYPERLINK "mailto:chris.davis@gov.wa.gov" chris.davis@gov.wa.gov >; McCloy, Lauren (GOV) < HYPERLINK "mailto:lauren.mccloy@gov.wa.gov" lauren.mccloy@gov.wa.gov >; Cahill, Jim (OFM) < HYPERLINK "mailto:Jim.Cahill@OFM.WA.GOV" Jim.Cahill@OFM.WA.GOV >; Keller, Cheri (OFM) < HYPERLINK "mailto:Cheri.Keller@OFM.WA.GOV" Cheri.Keller@OFM.WA.GOV >; Stamey, Gwen (OFM) < HYPERLINK "mailto:gwen.stamey@ofm.wa.gov" gwen.stamey@ofm.wa.gov >

Cc: Masterson, Jennifer (OFM) < <u>HYPERLINK "mailto:jennifer.masterson@ofm.wa.gov"</u>

jennifer.masterson@ofm.wa.gov >

Subject: RE: Energy/Carbon Budget Spreadsheet

<u>HYPERLINK "file://filedepot/OFM/_Common/Natural_Resources_Budget-Policy/Energy%20Climate%20Package%2019-21.xlsx" file:///</u>

Please note: For CEF, the 2017-19 funding for \$51.6 includes \$11 million from leftover ARRA-energy revolving fund, which we won't have in 2019-21.

Myra

From: Baldini, Myra (OFM) < HYPERLINK "mailto:myra.baldini@ofm.wa.gov" myra.baldini@ofm.wa.gov >

Sent: Saturday, November 10, 2018 10:41 PM

To: Davis, Chris (GOV) < https://example.com/hyperlink / McCloy, Lauren (GOV) < https://example.com/hyperlink / McCloy, Lauren (GOV) < https://example.com/hyperlink / Masterson, Jennifer (OFM) < https://example.com/hyperlink / McCloy, Lauren (GOV) < https://example.com/hyperlink / Masterson, Jennifer (OFM) < https://example.com/hyperlink / Masterson (OFM) < <a href="https:/

jennifer.masterson@ofm.wa.gov >

Subject: Energy/Carbon Budget Spreadsheet

Hi all,

I updated our Energy/Carbon package spreadsheet by adding a tab and reformat our current list based on our meeting with David.

* Renamed tab for our original spreadsheet to "MASTER list". Newly added tab is labelled